1/2 019 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--INTRODUCTION OF MEDICINAL SUBSTANCES THROUGH THE UMBILICAL VEIN IN THE TREATMENT OF HEPATIC ABSCESSES -U-

AUTHOR-(04)-OSTROVERKHOV, G.YE., NIKOLSKIY, A.D., KOTOV, I.A., MURASHEVA, Z.M.

COUNTRY OF INFO--USSR

SOURCE--KHIRURGIYA, 1970, NR 4, PP 75-79

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--VEIN, LIVER, ANTIBIOTIC DRUG EFFECT, DIAGNOSTIC METHODS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1983/1229 STEP NO--UR/0531/70/000/004/0075/0079

CIRC ACCESSION NO--AP0054124

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--18SEP70

2/2 019

CIRC ACCESSION NO--AP0054124

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS ANALYZE THE RESULTS OF TRANSUMBILICAL INJECTION OF ANTIBIOTICS AND OTHER SUBSTANCES IN 8 PATIENTS WITH ABSCESSES OF THE LIVER, 6 OF WHOM RECOVERED. IN PATIENTS WITH HEPATIC ABSCESSES THE AUTHORS RECOMMEND THE USE CANNULIZATION OF THE UMBILICAL VEIN FOR DIAGNOSTIC PORTOHEPATOGRAPHY AND SUBSEQUENTLY FOR PROLONGED INTRAPORTAL INFUSION OF MEDICINAL SUBSTANCES AS A SEPARATE METHOD OF TREATMENT OR IN COMBINATION WITH OPENING AND DRAINAGE OF ABCESSES. THE THEORETICAL SUBSTANTIATION OF THE EMPLOYMENT OF TRANSUMBILICAL INJECTION OF ANTIBIOTICS AND DRUGS IN THE TREATMENT OF PATIENTS WITH PYOGENIC ABSCESSES OF THE LIVER WITH THE AID OF MICROBIOLOGICAL TECHNIQUES THE AUTHORS DEMONSTRATE BY THE FACT OF GREATER CONCENTRATION OF DRUGS IN THE ZONE OF THE PATHOLOGICAL FOCUS, THUS ENSURING A MORE PRONOUNCED CURATIVE EFFECT.

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--17JUL70

TITLE--TRANSUBILICAL INFUSION OF MEDICINAL SOLUTIONS AND BLOOD -U-

AUTHOR--OSTROVERKHOV, G.YE., NIKOLSKIY, A.D., KOTOV, I.A., KOMAROV, I.A., MURASHOVA, Z.M.

COUNTRY OF INFO--USSR

SOURCE--KHIRURGIYA, 1970, NR 1, PP 59-62

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--VEIN, LIVER, HEMODYNAMICS, HEART, MEDICINE, BLOOD, ABDOMEN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1977/1696

STEP NO--UR/0531/70/000/001/0059/0062

CIRC ACCESSION NO--APO044841

UNCLASSIFIED

Ref. Code: UR 0531

Acc. Nr: AP0044841

PRIMARY SOURCE: Khirurgiya, 1970, Nr 1, pp 59-62

TRANSUMBILICAL INFUSION OF MEDICINAL SOLUTIONS AND BLOOD

Ostroverkhov, G. Ye.; Nikol'skiy, A. D.; Kotov, I. A.
Komarov, I. A.; Murashova, Z. M.

In 23 cases the authors used transumbilical infusion of medicamentous solutions to normalize venous pressure. Intraportal introduction of such solutions was found to bring down the pressure in peripheral veins, thereby improving the work of the right heart. Transumbilical infusion of medicinal agents practised in operations on the organs of the abdominal cavity contributes to the normalization of metabolism, raises antitoxic function of the liver and acts beneficially on the regulation of hemodynamics.

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REEL/FRAME
19771696

1/2 021 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--INTENSITIES OF PRIMARY AND SECONDARY X RAY SPECTRA -U-

AUTHOR-(C2)-STADNIKOV, A.G., NIKOLSKIY, A.P.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(2), 315-18

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--X RAY SPECTRUM, PHOTON, PARTICLE PRODUCTION, TITANIUM, SODIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1791 STEP NO--UR/0020/70/191/002/0315/0318

CIRC ACCESSION NO--AT0125403

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--27NOV70

2/2 021

CIRC ACCESSION NO--AT0125403

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE THEORETICAL LIMITS OF THE INTENSITIES OF PRIMARY AND SECONDARY X RAY SPECTRA, DETD. BY THE MAGNITUDE OF THE PRODUCTION OF X RAY PHOTONS INTO A SOLID ANGLE OF 1 SR BY 1 BOMBARDING ELECTRON OR PHOTON, ARE DERIVED. OPTIMAL REGIME OF THE PRIMARY SPECTRA EXCITATION CORRESPONDS TO THE PLATEUA OF THE CHARACTERISTIC OF A SPECTROMETER "ACCELERATING VOLTAGE, THE SPEED OF SUMMATION OF THE REGISTERED IMPLUSES". BY THE MAX. OF PRODUCTION OF PHOTONS, THE INFLUENCE OF INSTABILITY OF ACCELERATING VOLTAGE ON THE INTENSITY OF SPECTRA IS MIN. AT THESE CONDITIONS. INTENSITY OF SECONDARY SPECTRA OF LIGHT ELEMENTS DECREASES SHARPLY WITH THE DECREASE OF AT. NO. Z (IF THE SOFT COMPONENT OF X RAY IONIZING RADIATION IS FILTERED BEFORE IT IMPINGES ON A SAMPLE). PRODUCTION OF PHOTONS OF THE PRIMARY K SPECTRA OF ELEMENTS FROM TI TO NA (DILO. BY FILLER WITH Z EQUALS 13 8) DECREASES WITH Z DECREASE PROPORTIONAL TO SIMILAR TO PRIME3.5, INTENSITY OF THE SECONDARY SPECTRA DECREASES WITH Z PROPORTIONAL TO Z PRIME12 (THAT IS 4.0 TIMES 10 PRIME3 TIMES BY THE DECREASE OF Z FROM TI TO NA IF THE BEAM OF X RAY RADIATION FORMS THE PHOTONS WITH E SUBO LARGER THAN 5 KEV MAINLY). FOR THE OPTIMAL ENERGY OF BOMBARDING ELECTRONS AND PHOTONS AND UNDER THE SAME GEOMETRICAL CONDITIONS, THE MAX. OF PHOTON PRODUCTION OF THE SECONDARY K SPECTRA IS HIGHER THAN MAX. OF PRIMARY SPECTRA FOR ELEMENTS HEAVIER THAN C.

FACILITY: VSES. NAUCH.-ISSLED. INST. AVTOMAT. CHERNOI MET., MOSCOW, USSR.

UNCLASSIFIED

1/2 029 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--EFFECT OF IONIZING RADIATION ON C PRIME14 AMINO ACIDS INCORPORATION INTO NUCLEAR PROTEINS AND DNP OF RAT TISSUE CELLS -U-
AUTHOR-(03)-NIKOLSKIY, A.V., BLOKHINA, V.D., ROMANTSEV, YE.F.

COUNTRY OF INFO--USSR

SOURCE--VOPROSY MEDITSINSKOY KHIMII, 1970, VOL 16, NR 3, PP 259-262

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--IONIZING RADIATION BIOLOGIC EFFECT, CARBON ISOTOPE, AMINO ACID, LIVER, SPLEEN, THYMUS GLAND, GLOBULIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1998/0268 STEP NO--UR/0301/70/016/003/0259/0262

CIRC ACCESSION NO--AP0120958
UNCLASSIFIED

2/2 029 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0120958

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. C PRIME14 AMINO ACIDS INCORPORATION IN VITRO INTO TOTAL NUCLEAR PROTEINS AND DNP OF LIVER, SPLEEN AND THYMUS OF RATS IRRADIATED AT A DOSE 1000 R HAS BEEN STUDIED. PROTEIN SYNTHETIZING SYSTEM OF DNP WAS THE NUCLEAR RESIDUE WHICH DID NOT CONTAIN GLOBULINS. 1 AND 24 HOURS AFTER THE IRRADIATION THE PRONOUNCED INHIBITION OF C PRIME14 AMINO ACIDS INCORPORATION INTO NUCLEI AND DNP OF THYMUS CELLS WAS NOTED. 24 H AFTER THE IRRADIATION THE SAME PICTURE TOOK PLACE IN THE SPLEEN. ON THE OTHER HAND 1 H AFTER THE IRRADIATION EITHER THE STIMULATION OR THE INHIBITION DEPENDING UPON THE SEASON WAS SHOWN. IN THE LIVER AT ALL TIME INTERVALS STUDIED SOME ACTIVATION IN LABEL INCORPORATION HAS BEEN OBSERVED.

UNCLASSIFIED

USSR UDC 546

MATEROVA, Ye. A., NIKOL'SKIY, B. P., Academician, MUKHOVIKOV, V. V., Leningrad State University imeni A. A. Zhdanov

"Complex Formation in a Liquid Cation Exchanger"

Moscow, Doklady Akademii Nauk SSSR, Vol 211, No 2, pp 357-360

Abstract: The authors examine the results of an experimental study of equilibrium for systems of the liquid cation exchanger type (dioctyl phosphoric acid in chlorobenzene) and aqueous solutions of $HCl-CaCl_2$, $HCl-SrCl_3$, $HCl-BaCl_2$. The $M^{2+}-H^+$ exchange between aqueous and organic solutions is considered -- $MR_2 + H^+ \rightleftarrows H_2R_2 + M^{2+}$, where R^- is the organophosphorus anion, and M^{2+} is the symbol for ions Ca^{2+}, Sr^{2+}, Ba^{2+}. Experiments are done to determine the part played by complexing between the molecules of organic acid H_2R_2 and salt MR_2. The results show high selectivity of the organic phase for hydrogen ions.

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Radiation Chemistry

USSR UDC 541.49:546.791.6

NIKOL'SKIY, B. P., KRYLOV, L. I., ZAKHVATAYEV, B. B., and LYUBTSEV, R. I.

"Study of the Complex Formation of Actinoids and Lantanoids With o-Phthalic, 3-Nitrophthalic, and 4-Nitrophthalic Acids. 1. Complex Formation of Uranium"

Leningrad, Radiokhimiya, Vol 15, No 6, 1973, pp 804-809

Abstract: The complex formation of uranium (IV) with o-phthalic (I), 3-nitrophthalic (II), and 4-nitrophthalic (III) acids was investigated by the ion exchange method. It was shown that in weak acidic solutions (pH 3.2-3.6) complexes are formed only with the anions of the second degree of dissociation of organic acids. The stability constants of uranyl complexes with (I), (II), and (III) at the ionic strength of I, 0($NaNO_3$) are respectively $1.3 \cdot 10^4$, $4 \cdot 10^3$ and $4 \cdot 10^3$. It has been shown that introduction of a nitrogroup into position 3 or 4 of the phthalic acid has practically no effect on the stability of uranyl complexes in aqueous solutions.

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1/2 020 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--SOLUBILITY OF COMPLEX SALTS OF QUATERNARY AMMONIUM BASE HEXANITRATOTHORATES IN NITRIC ACID SOLUTIONS. II. SOLUBILITY AS A

AUTHOR-(03)-NIKOLSKIY, B.P., MARKOV, G.S., POSVOLSKIY, M.V.

COUNTRY OF INFO--USSR

SOURCE--RADIOKHIMIYA 1970, 12(2), 272-8

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--THORIUM COMPOUND, COMPLEX COMPOUND, QUARTERNARY AMMONIUM COMPOUND, SOLUBILITY, NITRIC ACID, CESIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605012/803 STEP NO--UR/0186/70/012/002/0272/0278

CIRC ACCESSION NO--AP0140239
UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0140239

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SOLY. OF (DMDBA) SUB2(TH(NO SUB3) SUB6) (I), WHERE DMDBA WAS DIMETHYLDIBENZYLAMMONIUM (II), AS A FUNCTION OF HNO SUB3 CONCN. AT 2-10M HNO SUB3 WAS STUDIED AT 25DEGREES. TOTAL TH CONCN. IN SOLNS. SHOWN ON MICROFICHE. AN APPARENT MIN. ON THE SOLY. CURVES AT 7.5-8M HNO SUB3 DISAPPEARED AFTER TAKING INTO ACCOUNT EQUIL. OF II WITH HNO SUB3, E.G. THE FORMATION OF SHOWN ON MICROFICHE.

UNCLASSIFIED

1/2 016 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--USE OF DIALYSIS TO STUDY COMPLEXING. V. USE OF DIALYSIS TO STUDY THE HYDROLYSIS OF RUTHENIUM NITROSYLNITRATE -U-

AUTHOR-(03)-NIKOLSKIY, B.P., ANDREYEV, V.I., LYUBTSEV, R.I.

COUNTRY OF INFO--USSR

SOURCE--RADIOKHIMIYA 1970, 12(1), 173-5

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--DIALYSIS, HYDROLYSIS, RUTHENIUM COMPOUND, NITROSO COMPOUND, NITRATE, IONIC BONDING, COMPLEX COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1505 STEP NO--UR/0186/70/012/001/0173/0175

CIRC ACCESSION NO--AP0135166

UNCLASSIFIED

2/2 016 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0135166

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE HYDROLYSIS OF NITROSYL COMPLEXES OF RU IN AQ. NANO SUB3 SOLNS. (WITH CONST. IONIC STRENGTH OF 0.6) WAS STUDIED AT ROOM TEMP. BY A DIALYSIS METHOD (NIKOL'SKII, ET AL., 1965); 3 DIFFERENT RU COMPLEXES EXIST IN THE PH RANGE 1-9.5: A COMPLEX WITH A DIALYSIS CONST. LAMBDA EQUALS 0.146 AT PH LESS THAN 3.5, A COMPLEX WITH LAMBDA EQUALS 0.114 AT PH 3.5-7, AND A COMPLEX WITH LAMBDA EQUALS 0.095 AT PH GREATER THAN 7. THE TRANSITION FROM THE 1ST TO THE 2ND COMPLEX WAS ASSOCD. WITH THE ADDN. OF 1.5 PLUS OR MINUS 0.5 HYDROXYL GROUPS, WHILE THE TRANSITION FROM THE 2ND TO THE 3RD COMPLEX WAS ASSOCD. WITH THE ADDN. OF 1 HYDROXYL GROUP; LOG K (WHERE K IS THE EQUIL. CONST. OF THE REACTION) FOR THE TRANSITION FROM THE 2ND TO THE 3RD COMPLEX WAS 7 PLUS OR MINUS 1, WHILE LOG K FOR THE TRANSITION FROM THE 1ST TO THE 2ND COMPLEX COULD HAVE VALUES OF 10 OR 20, DEPENDING ON THE NO. (1 OR 2) OF HYDROXYL GROUPS ADDED TO THE COMPLEX.

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--20NOV70

1/2 012

TITLE--EXISTENCE OF A MIXED HYDROXOACETATE COMPLEX OF URANYL IN AQUEOUS ACETATE NITRATE SOLUTIONS -U-

AUTHOR-(02)-NIKOLSKIY, B.P., KOLYCHEV, V.B.

COUNTRY OF INFO--USSR

SOURCE--RADIOKHIMIYA 1970, 12(1), 89-96

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ACETATE, URANIUM COMPOUND, COMPLEX COMPOUND, STABILITY CONSTANT, HYDROXIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

STEP NO--UR/0186/70/012/001/0089/0096

PROXY REEL/FRAME--3002/1204

CIRC ACCESSION NO--AP0128622

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--20NOV70

2/2 012

CIRC ACCESSION NO--AP0128622

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CALCNS. BASED ON EXPTL. DATA ON THE SORPTION OF U (ON ANIONIC RESINS) FROM AQ. ACETATE SOLNS. (CONTG. 6 TIMES 10 PRIME NEGATIVE3 MINUS 15 TIMES 10 PRIME NEGATIVE3 G ION ACETATE-L.) AT PH 2.4-3.0 SHOW THAT SUCH SOLNS. CONTAIN A MIXED ACETATE HYDROXIDE COMPLEX UO SUB2(ACO) SUB2 (OH) SUB2 (I); THE STABILITY CONST. OF I IS 7 TIMES 10 PRIME24 AND THE MEAN PARTIAL STABILITY CONST. (FOR EACH HYDROXYL GROUP) IS SIMILAR TO 1.7 TIMES 10 PRIME10. THE EQUIL. CONST. OF THE REACTION LEADING TO THE FORMATION OF I FROM (UO SUB2 (ACO) SUB3) AND 2(OH) PRIME NEGATIVE HAS A VALUE OF 4.0 TIMES 10 PRIME18.

UNCLASSIFIED

1/2 007 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--COMPLEXING OF IRON,III, WITH PHENOL -U-

AUTHOR-(05)-NIKOLSKIY, B.P., PALCHEVSKIY, V.V., CHEGODAYEVA, A.D., YAKUBOV, KH.M., SAMBUR, T.V.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 192(1), 102-4

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--IRON COMPOUND, COMPLEX COMPOUND, PHENOL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1204 STEP NO--UR/0020/70/192/001/0102/0104

CIRC ACCESSION NO--AT0134878

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--13NOV70

2/2 007

CIRC ACCESSION NO--AT0134878

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE COMPLEXING OF FE(III) WITH PHOH AND THE POSSIBLE FORMATION OF THE (FEOPH) PRIME2POSITIVE COMPLEX WAS STUDIED BY MEASURING THE CHANGE IN THE OXIDN. POTENTIAL OF THE FE(III)-FE(II) SYSTEM (USING FE(CLO SUB4) SUB3 AND FE(CLO SUB4) SUB2 IN NACLO SUB4 SOLN.) AT 25DEGREES AS A FUNCTION OF PH, THE ADDUACT CONCN., AND THE CONCNS. OF THE OXIDIZED AND REDUCED FE. THE PH DEPENDENCE CURVES OF THE OXIDN. POTENTIAL IN THE PRESENCE AND IN THE ABSENCE OF PHOH INDICATE THAT PHOH HAS NO EFFECT ON THE HYDROLYSIS OF FE(III). THE BLUE COLOR WHICH APPEARS AT PH GREATER THAN OR EQUAL TO 0.9 CHANGES TO YELLOW AT PH GREATER THAN 2. ADDNL. SPECTROPHOTOMETRIC STUDY OF THE FE(III) PHENOL SYSTEM AT 550 NM REVEALED THAT THE ABSORBANCE OF THE SYSTEM INCREASES WITH INCREASING PHOH CONCN. AND WITH PH OF THE SYSTEM. THE EXPTL. DATA SUGGEST THAT THE COMPLEX RESPONSIBLE FOR THE BLUE COLOR IS FORMED BY THE ADDN. OF PHOH TO THE PRODUCTS OF THE PRIMARY HYDROLYSIS OF FE(III) COMPDS.: (FE (H SUB2 O) SUB6) PRIME3POSITIVE FORMS AND IS FORMED FROM (FE(OH)(H SUB2 O) SUB5)PRIME2POSITIVE PLUS H PRIMEPOSITIVE, (FE(OH)(H SUB2 O) SUB5) PRIME2POSITIVE PLUS PHOH FORMS AND IS FORMED FROM FE(OH)(H SUB2 O) SUB4 PHOH) PRIME2POSITIVE. FACILITY: LENINGRAD. GOS. UNIV. IM. ZHDANOVA, LENINGRAD, USSR.

UNCLASSIFIED

1/2 036 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--THERMODYNAMIC AND SPECTRAL PROPERTIES OF P-NITROPHENOL IN AQUEOUS ELECTROLYTE SOLUTIONS -U-

AUTHOR-(04)-NIKOLSKIY, B.P., YUDOVICH, YE.YE., PALCHEYSKIY, V.V., SPEVAK, V.N.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(3), 709-11

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--THERMODYNAMIC CHARACTERISTIC, SPECTRUM, PHENOL, ORGANIC NITRO COMPOUND, ELECTROLYTE, ENTHALPY, ENTROPY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0723 STEP NO--UR/0076/70/044/003/0709/0711

CIRC ACCESSION NO--AP0119630

UNCLASSIFIED

2/2 036 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0119630

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PARTIAL ENTHALPY AND ENTROPY OF DISSOLN. OF P-O SUB2 NC SUB6 H SUB4 OH DECREASED WITH INCREASING CONCN. OF ELECTROLYTE. THE DECREASE OF THE ENDOTHERMIC CONTRIBUTION TO DELTAH DEPENDED ON THE ELECTROLYTE, KBR GREATER THAN KCL GREATER THAN NACL GREATER THAN LICL. THUS, THE DECREASE WAS LARGER THE LESS HYDRATED THE IONS OF THE ELECTROLYTES. THE ENERGY OF THE 1ST ELECTRONIC TRANSITION DECREASED WITH INCREASING CONCN. OF ELECTROLYTE AND THE EFFECT OF CREASED WITH INCREASING CONCN. OF ELECTROLYTE AND THE EFFECT OF ELECTROLYTES ON THE ENERGY VARIED IN THE ABOVE ORDER. FACILITY: LENINGRAD. GOS. UNIV. IM. ZHDANOVA, LENINGRAD, USSR.

UNCLASSIFIED

1/2 012 UNCLASSIFIED PROCESSING DATE--09OCT70

TITLE--QUATERNARY AMMONIUM BASES AS ANALYTICAL REAGENTS. 1. SEPARATION AND DETERMINATION OF THORIUM USING N BENZYLQUINOLINIUM NITRATE -U-

AUTHOR-(03)-MARKOV, G.S., NIKOLSKIY, B.P., POSVOLSKIY, M.V.

COUNTRY OF INFO--USSR

SOURCE--ZH. ANAL. KHIM. 1970, 25(2), 277-80

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL ANALYSIS, CHEMICAL SEPARATION, THORIUM, NITRATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1994/1891 STEP NO--UR/0075/70/025/002/0277/0280

CIRC ACCESSION NO--AP0115710

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--090CT70

2/2 012

CIRC ACCESSION NO--AP0115710

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A METHOD IS DESCRIBED FOR THE QUANT. SEPN. AND DETN. OF TH, BASED ON TH PPTN. FROM 7-8M HNO SUB3 WITH N BENZYLQUINOLINIUM NITRATE (I). TH IS THEN WEIGHED AS (C SUB16 H SUB14 N) SUB2 (TH(NO SUB3) SUB6). THE EFFECT OF HNO SUB3 CONCN. AND I ON THE COMPLETENESS OF TH PPTN. WERE STUDIED, OPTIMUM CONDITIONS FOR ITS QUANT. SEPN. WERE FOUND AND THE COMPLETENESS OF SEPG. RARE EARTHS AND ZR FROM TH WERE EXAMD. TH PPTS. BEST FROM 7-9M HNO SUB3; IS GREATER THAN OR EQUAL TO 99.7PERCENT TH AT A CONCN. OF 1-2 G TH-L. WERE SEPD. AT A 6 FOLD EXCESS OF I. ADD TO THE SOLN. CONTG. 10-50 MG TH IN 8-15 ML SUCH AN AMT. OF HNO SUB3 TO OBTAIN A SOLN. 7.0-7.5M HNO SUB3, THEN ADD DROPWISE WHILE MIXING 3-4 ML 8PERCENT I IN HNO SUB3. KEEP THE PPT. ON A WATER BATH FOR 20 MIN AT 40DEGREES TO 50DEGREES, COOL, AND AFTER 40 MIN. FILTER ON A GOOCH NO. 3. WASH WITH 3-4 ML HNO SUB3 SOLN. CONTG. 0.5PERCENT I. DRY AT 105-10DEGREES TO A CONST. WT. FACILITY: INST. RADIUM, LENINGRAD, USSR.

UNCLASSIFIED

1/2 024 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--MECHANISMS OF ERBIUM THERMAL CONDUCTIVITY -U-

AUTHOR-(03)-NIKOLSKIY, G.S., ZVYAGINA, N.M., YEREMENKO, V.V.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(4), 1275-7

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, MATERIALS

TOPIC TAGS--ERBIUM ALLOY, THERMAL CONDUCTIVITY, MAGNETIC FIELD, RARE EARTH METAL, YTTRIUM ALLOY, MAGNETORESISTANCE, CURIE POINT, SPIN WAVE SPECTRUM, MAGNETIC STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0477 STEP NO--UR/0181/70/012/004/1275/1277

CIRC ACCESSION NO--AP0126229
UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--20NOV70

2/2 024

CIRC ACCESSION NO--AP0126229

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE BEHAVIOR OF THERMAL RESISTIVITY OF ER IN A MAGNETIC FIELD IN THE NEIGHBORHOOD OF THE CURIE POINT WAS INVESTIGATED. ISOTHERMS ARE GIVEN OF THE MAGNETORESISTANCE EFFECT IN ER. THE EFFECT OF A MAGNETIC FIELD ON ELEC. RESISTANCE IN GENERAL AFFECTS THE CONDUCTION ELECTRON DOMAIN BOUNDARIES, AND THE ENERGY SPECTRA OF CONDUCTION ELECTRONS AND SPIN WAVES. THE EFFECT OF A MAGNETIC FIELD ON THE ENERGY SPECTRA OF CONDUCTION ELECTRONS CAN BE REALIZED BY MEANS OF THE ACTION OF THE MAGNETIC STRUCTURE AND PRIMARILY ON ITS PERIODICITY. THE EFFECT OF THE MAGNETIC FIELD IS IMPORTANT ONLY ON THE SPIN WAVE SPECTRUM. SPLITTING OF THIS SPECTRUM DUE TO STRONG ANISOTROPY IS SUFFICIENTLY LARGE TO PREVENT EXCITATION OF THE SPIN WAVES AT LOW TEMPS. WITH THE TRANSITION INTO THE ANTIFERROMAGNETIC STATE, THE SPECTRUM OF THE SPIN WAVES CHANGES IN SUCH A WAY THAT A BRANCH APPEARS WHICH DESCRIBES VIBRATIONS OF MAGNETIC MOMENTS, THE FREQUENCIES OF WHICH ARE LOWERED IN A MAGNETIC FIELD. THE CURVES ARE ALSO GIVEN OF THE CONCN. DEPENDENCE OF ELEC. AND THERMAL RESISTANCES OF ER-Y ALLOYS.

FACILITY: FIZ.-TEKH. INST. NIZKIKH TEMP., KHARKOV, USSR.

UNCLASSIFIED

1/2 028 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--MAGNETORESISTANCE OF ERBIUM YTTRIUM ALLOYS AT LOW TEMPERATURES -U-

AUTHOR-(02)-NIKOLSKIY, G.S., ZVYAGINA, N.M.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(5), 1525-7

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--ERBIUM ALLOY, YTTRIUM ALLOY, MAGNETORESISTANCE, MAGNETIC FIELD, ELECTRIC RESISTANCE, MAGNETIC FIELD, LOW TEMPERATURE EFFECT, ANTIFERROMAGNETIC MATERIAL, HIGH PURITY METAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0952 STEP NO--UR/0181/70/012/005/1525/1527

CIRC ACCESSION NO--AP0133038

UNCLASSIFIED

2/2 028 UNCLASSIFIED PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AP0133038
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DEPENDENCE OF THE ELEC. RESISTANCE OF THE ALLOY ON THE MAGNETIC FIELD IS COMPLETELY DIFFERENT FROM THAT OF THE PURE METAL. THIS CAN BE RELATED TO A HIGHER STABILITY OF THE ANTIFERROMAGNETIC STRUCTURE IN THE ALLOY. ON FURTHER INCREASE IN Y CONTENT, THE GAP IN THE SPIN WAVE SPECTRUM CONTINUES TO DECREASE. THIS IS APPARENTLY DUE TO A DECREASE IN THE EXCHANGE INTERACTION ENERGY.
FACILITY: FIZ.-TEKH. INST. NIZKIKH TEMP., KHARKOV, USSR.

UNCLASSIFIED

USSR

NIKOL'SKIY, I. D.

Bioakustika na sluzhbe progressa (Bioacoustics in the Service of Progress), Moscow, Znaniye, 1973, 64 pp, 63,540 copies printed

Annotation

The brochure describes the study of the voices of animals, the determination of the biological significance of their signals, and the applied aspect of bioacoustics. The author acquaints the reader with the collection of the Central Library of Recordings of the Voices of Animals of the Biological-Soil Department of Moscow State University and with its work methods and tasks.

Foreword

The rapidly growing influence of human activity on nature confronts us with the task of using natural resources rationally and of being thrifty with nature's riches.

Living nature is not only the environment. Living nature is the source of the necessary food, of pure water and of fresh, unpoisoned air. The necessity to preserve nature and to make rational use of its resources now confronts all nations on our planet as an urgent task. In our country a special law and a special decree of a session of the USSR Supreme Soviet (1972) on nature conservation have been issued.

The solution of the nature conservation problem requires not only the

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NIKOL'SKIY, I. D., Znaniye, 1973, 64 pp

extensive study of the structure and patterns of existence of our planet's living cover (the biosphere) but also the elaboration of ways and means for controlling processes in it. We must not only protect natural resources, we must also multiply them; we must enrich nature and make more extensive use of its potential. This requires the ability to combat harmful organisms and to control the behavior of useful organisms. As we know, widely used chemical pest control agents fall far short of always achieving their goal and frequently bring not only good but appreciable harm as well.

From this point of view, no little importance is attached to the study of the behavior of animals and in particular the study of the voices of animals and the determination of the biological significance of their signals. Since time immemorial man (to be sure on a limited basis) has used sound signals to scare off animals, birds and insects or to attract those of them that he wished to catch or shoot (all manner of hunting lures, bird-call pipes, and other accessories).

In our time the need to study and utilize the voices of animals has increased immeasurably. For example, birds have proven to be a serious menace on landing strips at airports; flocks of migrant starlings and other birds can destroy the harvest of a vineyard in a few hours.

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NIKOL'SKIY, I. D., Znaniye, 1973, 64 pp

Great importance is acquired by the attracting of animals by sound signals and especially by the acoustical reconnaissance of schools of commercial fish. The sphere of use of repellent and apellant sound signals is growing rapidly. No less attention is attracted by the study of the voice and hearing of animals as a means of orientation in space and long-range navigation.

The points enumerated are by themselves sufficient to demonstrate the importance of bioacoustics. In our day it is equipped with modern research methods and devices; it has at its disposal modern equipment for the recording and reproduction of voice signals, which increases its potential to an extraordinary degree.

All these questions are the subject of the brochure by I. D. Nikol'skiy, the head of the Central Library of Recordings of the Voices of Animals, which is under the auspices of the chair of vertebrate zoology of the Biological-Soil Department of Moscow State University. The library has already amassed a considerable number of recordings and has established contacts with zoologists and bioacoustical amateurs not only in our country but in foreign countries as well.

The brochure discusses both the current tasks of bioacoustics as well as its future and for those interested in this problem more detailed information on technique and method is presented. N. P. Naumov, Doctor of Biological Sciences.

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USSR

NIKOL'SKIY, I. D., Znaniye, 1973, 64 pp

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USSR

UDC 549.212

KOTOSONOV, A. S., DEMIN, A. V., POLOZHIKHIN, A. I., NIKOL'SKIY, I. F., and RAKCHEYEVA, V. I.

"Effect of Boron on Some Physical Characteristics of Artificial Graphites"

Moscow, Khimiya Tverdogo Topliva, No 3, May-Jun 70, pp 115-120

Abstract: The authors studied the effect of boron, introduced into the initial raw material (0.01-5.0 wt. percent), on some physical characteristics of graphite materials based on calcined petroleum coke, prepared by the thermomechanical treatment method. The attempt was also made to estimate the amount of boron dissolved in the graphite lattice and to establish the interrelationship between the amount of dissolved boron and the total content thereof, on the one hand, and certain physical properties of graphite, on the other. Specific electrical resistivity, magnetic resistance, Hall constant, X-ray diffraction parameters, compression strength and residual boron content were

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KOTOSONOV, A. S., et al., Khimiya Tverdogo Topliva, No 3, May-Jun 70, pp 115-120

measured on specimens, as well as relative deformation during thermomechanical treatment.

There was found to be an increase in the deformation of specimens during thermomechanical treatment and the density and mechanical strength of the material with an increase in the boron content. The structure of boronized graphite is characterized by increased crystallite size and reduced interlayer distance. The electron properties of the graphite depend mainly on the amount of boron dissolved in the lattice and replacing some of the carbon atoms.

It is shown on the basis of an analysis of the Hall constant that the limiting solubility of boron is limited to 1 percent with re-

USSR

KOTOSONOV, A. S., et al., Khimiya Tverdogo Topliva, No 3, May-Jun 70, pp 115-120

spect to the ordered part of carbon. The rest of the boron is localized between the graphite crystallites in the form of carbide compounds. It is assumed that the increased strength of the graphite is due to the carbide phase of boron.

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USSR

UDC 621.317.799:621.382.2

YEFREMOV, I.S., ZAGAYNOV, N.A., NIKOL'SKIY, I.K., BEZRUKOV, G.I., SLEPTSOV, M.A., CHIRVINSKIY, V.M. [Mosk. energ.in-t--Moscow Power Institute]

"Method Of Continuous Measurement Of The Temperature Of A P-N Junction Of A Rectifier"

USSR Author's Certificate No 275236, filed 26 July 67, published 22 Oct 70 (from RZh--Elektronika i yeye primeneniye, No 4, April 1971, Abstract No 4B598P)

Translation: A method is proposed for continuous measurement of the temperature of the p-n junction of a rectifier, mainly under operational conditions. With the object of increasing the utilization factor of the rectifier power, the temperature of the rectifier case and the current of the loaded rectifier are measured simultaneously, proportional conversions of the parameters measured into uniform signals are performed, these signals are summed and by the magnitude of these sums the temperature of the rectifier's p-n junction is judged.

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USSR

UDC 612.018.24612.4597-07

GYULLING, E. V., Candidate of Medical Sciences, KAVSAN, V. M., Candidate of Biological Sciences, MEL'NIKOV, O. F., NIKOL'SKIY, I. S., and SEREBRYANYY, S. B., Doctor of Chemical Sciences, Kiev Scientific Research Institute of Otolaryngology, and Sector of Molecular Biology and Genetics, Academy of Sciences USSR

"Possible Regulation of the Immunological Activity of the Lymphoid System by Thymus Factors. 1. Stimulation of Antibody Formation by Calf Thymus Extract Fractions Obtained by Means of Sephadex G-25"

Kiev, Zhurnal Ushnykh Nosovykh i Gorlovykh Bolezney, No 6, 1971, pp 25-27

Abstract: The crude extract of the thymus gland has no biological activity. However, when the acetone-insoluble extract of calf thymus is separated into three fractions by means of gel filtration through Sephadex G-25, the first two fractions stimulate immunogenesis in newborn mice, that is, 15 microgram thymus protein doses injected subcutaneously increase the number of antibody-producing cells in the spleen and the weight of the spleen. It was concluded that the crude thymus extract contains stimulating and inhibiting factors and that after Sephadex filtration the latter remain in the third fraction. It is suggested that the purified stimulating factors might be useful in treating diseases developing as a result of immunological insufficiency.

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USSR

UDC 621.791.1

NIKOL'SKIY, L.'A., and RATOVA, N. V., Moscow

"On the Calculation of Parameters of the Pressure Welding Process With Additive Metal"

Moscow, Fizika i Khimiya Obrabotki Metallov, No 1, Jan-Feb 71, pp 101-106

Abstract: On the basis of experimental data on investigations of the kinetics of the new technological joining process of light alloys, the pressure welding, and in accordance with physico-chemical welding characteristics in the solid state, functions are derived from which pressure welding conditions providing a strong joint can be determined. A diagram is given from which the optimum welding temperature and duration of the pressure welding operation of aluminum alloys may be selected.

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USSR UDC 621.791.1

NIKOL'SKIY, L. A., and RATOVA, N. V., Moscow

"On the Diffusion in the Pressure Welding of Light Alloys"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 1, Jan-Feb 72, pp 114-120

Abstract: The diffusion on the boundary of the initial metal and the welding rod metal was experimentally investigated in the pressure welding of aluminum alloys of different alloying systems. The width of the transition zone was found to be independent of the nature of the diffusing element (Cu, Zn, Mg), the welding heat in the interval of 440-480°C, and the heat treatment of the weld. The diffusion coefficient, determined according to Matano, is higher by a factor of 10^3 than the calculated value. With regard to the diffusion acceleration at the expense of plastic deformation, a value of the diffusion coefficient which is lower than the experimental value by a factor of 10 was derived. The dominant process in the development of the transition zone between the initial and the welding rod metals in pressure welding is not diffusion, but the plastic deformation, the development of which determines the weld properties. The diffusion has practically no effect on the weld properties in the welding of similar alloys. Four illustrations, one table, three formulas, ten bibliographic references.

1/1

USSR

UDC 533.922

AVRAMENKO, M. I., KUZNETSOV, V. S., KUZNETSOVA, N. P., NIKOL'SKIY, M. A. and FIDEL'SKAYA, R. P.

"Calculation of Phase Focusing of Intensive Bunches of Charged Particles in Direct-Action Accelerators"

Moscow, Atomnaya Energiya, Vol 32, No 5, May 72, pp 437-440

Abstract: The study of particle dynamics in direct-action accelerators requires consideration of the Coulomb interaction of particles in a bunch, as well as the velocity spread of the particles. Such a problem is complicated to solve in a full volume, since the particle motion has to be considered in a six-dimensional coordinate and velocity space. To simplify the problem, it is assumed that the longitudinal motion of the particles of the bunch does not depend on their radial coordinates, nor the radial motion of the particles on their axial coordinates. It is also assumed that the particle density distribution in the transverse phase space is microcanonical and at a given moment of time is the same for any cross-section of the bunch z = const. These assumptions permit reducing the six-dimensional problem of the phase

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AVRAMENKO, M. I., et al., Atomnaya Energiya, Vol 32, No 5, May 72, pp 437-440

focusing of a bunch to a two-dimensional problem concerning the longitudinal coordinates and velocities of particles. The article considers a nonstationary case. No constraints are imposed on the particle density distribution function in the longitudinal phase space. A description is given of the calculation method used to study peculiarities of the formation of intensive bunches of nanosecond duration in direct-action accelerators. A diagram is given showing successive variations in the configuration of the longitudinal phase volume, the linear charge density distribution, and the longitudinal Coulomb repulsive force along a bunch during passage through an accelerator. It is shown that, due to the nonlinearity of the longitudinal Coulomb forces, the configuration of the longitudinal phase volume of the bunch is considerably distorted, which phenomenon limits the bunching factor.

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USSR

NIKOL'SKIY. M. S.

"Observation of Ideally Observable Discrete Systems in the Presence of Noise"

Teoriya Optimal'n. Resheniy [Theory of Optimal Solutions -- Collection of Works], Kiev, 1972, pp 106-126 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V275, by R. Liptser).

Translation: The problem is studied of estimating initial vector x(0) of the sequence of vectors {x(0),..., x(k),...}, fixed using the recurrent equation

$$x(k+1)=A(k)x(k)+f(k)$$

from observations

$$y(k)=G(k)x(k)+\omega(k),$$

where A(k), G(k), f(k) are known quantities, while {ω(k), k = 0.1,...) is a sequence of random quantities with $|\omega(k)| \leq \mu$. An estimate of vector x(0) is sought in the class of linear functions of (y(0), y(1),...).

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USSR UDC 517.934:518.733.431

NIKOL'SKIY, M. S., Mathematics Institute of the Academy of Sciences USSR imeni V. A. Steklov

"Direct Method in Linear Differential Games With General Integral Constraints"

Minsk, Differentsial'nyye Uravneniya, Vol. 8, No. 6, Jun 72, pp 964-971

Abstract: Linear differential games of pursuit with integral constraints on the control of the players are discussed and various sufficient conditions are given under which, if fulfilled, the pursuit from a given initial point z_0 can be ended after a certain calculable time. In previous studies the integral constraints on the control of the players were considered in the same functional space, but the present article considers a wider class of games in which the control of the pursuer belongs to a subset of the Orlicz class and the control of the escapee belongs to a subset of a more general class of measurable functions. The method proposed for this solution of the differential game is an analog of a method which was applied by L. S. Pontryagin for games with geometrical constraints on the control of the players. The method uses directly

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NIKOL'SKIY, M. S., Differentsial'nyye Uravneniya, Vol. 8, No. 6, Jun 72, pp 964-971

the advantage of the pursuer over the escapee and is therefore called a direct method. The following pursuit problem is considered:

$$\dot{z} = Az + Bu - Cv$$

where z is an n-dimensional vector in the Euclidean space R^n; A is a matrix of dimensionality $n \times n$; u and v are controlling vectors belonging to the Euclidean spaces R^p, R^q; B, C are rectangular matrices of dimensionality $p \times n$, $q \times n$. The controlling vector u is at the disposal of the pursuer and the controlling vector v is at the disposal of the escapee. A certain linear subspace is assigned in R^n. The pursuer begins at time $t = 0$ from the position $z_0 \in D$ and is considered finished at the time $t_1 > 0$ when $z(t_1) \in D$ is first fulfilled. It is assumed that the pursuer at each time t knows the phase position $z(t)$ and the control of the escapee $v(t)$; i.e., pursuit with discrimination for the escapee is assumed.

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Semiconductor Technology

USSR

UDC 62-41:669.24

SOROKIN, P. I., NIKOL'SKIY, N. N., and FILYAYEV, V. I.

"On the Possibility of Substituting Alloy 29NK (Kovar) in a Three-Layer Strip"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 8, Aug 73, pp 73-74

Abstract: In an attempt to find a less expensive material to replace alloy 29NK (kovar) in a three-layer strip (Ni-koval-Ni-Au) used in semiconductor instruments, a search of the literature led the authors to test alloy N43G-VI, which is very similar to 29NK in physical and engineering properties. Dialtometric curves of the selected components and moduli of elasticity were obtained at 100, 200, 300, 400, and 500°C from which the values of elongation growth per unit length of strip Ni-kovar-Ni and Ni-N43G-VI-Ni were calculated and found to be adequately close. Extensive plant tests were conducted on a batch of semiconducting instruments which showed the reliability of operation of the experimental instruments in which the kovar had been replaced by alloy N43G-VI. One figure, five bibliographic references.

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USSR

UDC 669.013:539.319

KRISHTAL, M. A., TITENSKIY, E. G., and NIKOL'SKIY, N. N., Tula Polytechnic Institute

"Investigation of Temperature Dependences of Modulus of Elasticity and Decrement of Vibrations for the Study of Phase Changes in Cast Irons"

Sb. nauchn. tr. Perm. politekhn. in-t (Collection of Scientific Works of Perm' Polytechnic Institute), 1970, No 73, pp 45-48 (from RZh-Metallurgiya, No 3, Mar 71, Abstract No 31896 by N. Fonshteyn)

Translation: The dynamic modulus of elasticity E and decrement of vibrations δ of white irons (2-3.2% C, 0.7-2.2% Si) were studied in the 20-1050° range. A nonlinear decrease in E with temperature was found. The first inflection on the curve $E = f(T)$ is treated as the recrystallization threshold and the transition to the linear sector as the end of the eutectoid transformation. The curve $\delta = f(T)$, which reveals a growth of internal friction with temperature elevation, displays an inflection corresponding to the beginning of the phase change and a relaxation maximum whose formation temperature is treated as the completion of the transition. On the basis of results of $E = f(T)$ and $\delta = f(T)$ measurements during heating and cooling a conclusion is reached on the effect of C and Si on the magnitude of the phase recrystal-

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KRISHTAL, M. A., et al., Sb. nauchn. tr. Perm. politekhn. in-t, 1970, No 73, pp 45-48

lization range. The value of the effective activation energy of the process responsible for formation of the maximum is 69,5000 cal/g-atom, which practically coincides with the activation energy of austenite self-diffusion (68,000-74,000 cal/g-atom). Two illustrations. Bibliography with three titles.

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1/2 032 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--CHARACTERISTICS OF THE TEMPERATURE DEPENDENCE OF THE ELASTIC MODULUS ADN THE VIBRATION DECREMENT OF HIGH CARBON STEELS -U-

AUTHOR-(03)-KRISHTAL, M.A., TITENSKIY, E.G., NIKOLSKIY, N.N.

COUNTRY OF INFO--USSR

SOURCE--FIZIKA METALLOV I METALLOVEDENIE, FEB. 1970, 29, (2), 442-445

DATE PUBLISHED----FEB70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--ELASTIC MODULUS, TEMPERATURE DEPENDENCE, HIGH CARBON STEEL, VIBRATION DAMPING, AUSTENITE, ALLOY PHASE TRANSFORMATION, HIGH TEMPERATURE EFFECT/(U)U10 CARBON STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/0342 STEP NO--UR/0126/70/029/002/0442/0445

CIRC ACCESSION NO--AP0129574
UNCLASSIFIED

2/2 032 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0129574

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TEMP. DEPENDENCE OF THE ELASTIC MODULUS AND DAMPING DECREMENT OF C STEEL U10 IN THE NORMALIZED STATE WERE STUDIED IN A STANDARD APPARATUS SPECIALLY ADAPTED TO FACILITATE MEASUREMENTS AT 1200DEGREESC. PARTICULARLY COMPLEX CHANGES IN THESE PARAMETERS AT HIGH TEMP. REFLECTED SMALL CHANGES TAKING PLACE IN THE STRUCTURE AND SUBSTRUCTURE OF THE AUSTENITE; IN THIS REPSECT THE METHOD HAD A MUCH GREATER SENSITIVITY THAN CONVENTIONAL TECHNIQUES. AN ANOMALOUS RISE IN THE MODULUS AT 1000-1050DEGREESC WAS ATTRIBUTED TO THE DISSOLUTION OF IMPURITIES (CARBIDES AND NITRIDES AT GRAIN BOUNDARIES).

UNCLASSIFIED

USSR

UDC 669.14.018.198.3.001.6

KLAUSTING, YE. A., and NIKOL'SKIY, O. I.

"Industrial Testing of High-Strength Deeply Hardenable Steels"

Spetsial'nyye Stali i Splavy [Special Steels and Alloys--Collection of Works], No 77, Metallurgiya Press, 1970, pp 214-222

Translation: Results are presented from industrial testing of types 14Kh2GMR and 14KhMNDFR high-strength steel. It is demonstrated that these steels are characterized by deep hardenability and after quenching in water and high-temperature annealing, sheets up to 60 mm thick have $\sigma_{0.2} \geq 600$ Mn/m^2 (60 kg/mm^2) and a_H at -40°C $\geq$ 400 kj/m^2 (4 kg·m/mm^2).

Type 14Kh2GMR and 14KhMNDFR steels are recommended for broad industrial testing and for the manufacture of experimental structures. 3 figures; 4 tables; 2 biblio refs.

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UDC 537.591.15

USSR

VERNOV, S. N., Y'EGOROV, T. A., Y'EFIMOV, N. N., KOLOSOV, V. A., KORYAKIN, V. D., KRASIL'NIKOV, D. D., KUZ'MIN, A. I., KULAKOVSKAYA, V. P., MAKSIMOV, S. V., NESTEROVA, N. M., NIKOL'SKIY, S. I., ORLOV, V. A., SLEPTSOV, I.YE., SIZOV, V. V., KHRISTIANSEN, G. B., and SHAMSUTDINOVA, F. K.

"Preliminary Results of Recording Extensive Showers on a Recording Array in Yakutsk"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 35, No 10, Oct 71, pp 2098-2101

Abstract: Experiments are described in which attempts were made at determining the energy spectrum, composition, and anisotropy of cosmic rays within the range of energy 10^{17} to 10^{18} ev. It is desired to extend the range to cover 10^{19} ev and above. Of a particular interest are the following problems: do the rays originate within the Galaxy or in metagalactic regions, what is the direction from which they arrive, and how Cerenkov radiation produced by them is distributed within the atmosphere. The test equipment consists of 13 recording points distributed over an area of 3 km², with a central timing control point. The output spectrum was measured over a period of 29.5 hours. 82 showers were noted during that period, with the axes falling within the

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USSR

VERNOV, S. N., et al., Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 35, No 10, Oct 71, pp 2098-2101

array area. The orientation of the axis was found by the "triangulation" method, comparing the time of arrival of the showers at different recording points. An analytic expression is given in the paper for the integral output spectrum of extensive showers at sea level for the interval of N between 2×10^7 and 2×10^8. The intensity, determined with this formula, appears to be 2 to 3 times as great as recorded elsewhere. Distribution of Cerenkov light with respect to the shower axis was determined by observations conducted on clear, moonless nights. It was found to be similar to that of the primary gamma quanta, but it decayed with the distance from the axis more slowly than the amount of charged particles ($R^{-2.5}$ as against $R^{-3.3}$ for charged particles).

Examination of the energy spectrum of primary particles lead to the conclusion that the electromagnetic component is responsible for 80% of it. Dependence of primary energy on the output N was established, and on the basis of this relation the integral spectrum was computed. The coefficient connecting these two magnitudes was found to be twice as high as the one previously accepted elsewhere.

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USSR

VERNOV, S. N., et al., Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 35, No 10, Oct 71, pp 2098-2101

In the final analysis, variation of Cerenkov light at the primary particle energy of 3.6×10^{16} ev and the output (intensity) of 1.5×10^{7} particles at sea level is given, as well as the expected distribution of the nuclear components of primary rays.

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1/2 C18 UNCLASSIFIED PROCESSING DATE--11DEC70

TITLE--THE PRIMARY ENERGY SPECTRUM OF COSMIC RAYS IN THE 10 TO THE 13TH POWER TO THE 10 TO THE 15TH POWER EV REGION -U-

AUTHOR-(04)-HLAVAC, T., NESTEROVA, N.M., NIKOLSKIY, S.I., ROMAKHIN, V.A.

COUNTRY OF INFO--USSR, HUNGARY

SOURCE--INTERANTICNAL CONFERENCE ON COSMIC RAYS, 11TH, BUDAPEST, HUNGARY, AUGUST 15-SEPTEMBER 4, 1969, PROCEEDINGS, VOLUME 1 ORIGINE AND GALACTIC

DATE PUBLISHED--------70

SUBJECT AREAS--ATMOSPHERIC SCIENCES

TOPIC TAGS--EXTENSIVE AIR SHOWER, ENERGY SPECTRUM, COSMIC RAY

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PROXY FICHE NO----FD70/605060/F08 STEP NO--HU/2506/70/029/000/0521/0525

CIRC ACCESSION NO--AT0144421

UNCLASSIFIED

2/2 018 UNCLASSIFIED PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AT0144421

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INVESTIGATION OF THE EXTENSIVE AIR SHOWER (EAS) SIZE SPECTRUM IN THE SIZE INTERVAL OF 2,000 TO 2,000,000 EV, MEASURED AT THE TIEN SHAN STATION (ALTITUDE 3340 M A.S.L.). IT WAS FOUND THAT THE MEASURED SIZE SPECTRUM CANNOT BE REPRESENTED BY A POWER LAW WITH A CONSTANT EXPONENT. THE DATA OBTAINED ARE COMPARED WITH VARIOUS THEORETICAL CALCULATIONS, AND AN INTERPRETATION OF THE RESULTS IS PRESENTED. FACILITY: AKADEMIIA NAUK SSSR, FIZICHESKII INSTITUT, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 546.26:546.45:543.226

YEVSEYEVA, T. I., CHERSTVENKOVA, YE. P., NIKOL'SKIY, V. A., and DENISOVA, V.I.

"Determination of Free Carbon In Metallic Beryllium"

Moscow, Zavodskaya Laboratoriya, No 4, 1973, pp 397-400

Abstract: A thermogravimetric study was made of the rate of burn out of metallic beryllium and its carbide. The analysis was done in air on a thermobalance with continuous weighing with slow warm-up of the furnace up to 1120° C. The beryllium carbide produced by caking of metal oxide with carbon black contained 7.4% O, 6.4% free C, and 33.3% bound C. The free C was found to oxidize more rapidly and at a lower temperature than carbon carbide. The suggested method of determining free C in metallic beryllium is based on burn up of a weighed sample of the materiml in a stream of oxygen with subsequent gas-chromatographic measurement of the separated carbon dioxide. The quantity of carbon carbide in any of residues after direct determination of free carbon was found to be equal to its initial content. Results of the activation analysis confirm the accuracy of the method. Three figures, three tables, eight bibliographic references,

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USSR

UDC: 517.514

NIKOL'SKIY, S. M.

"Certain Boundary Value Problems for Equations with Strong Degeneration"

Teoremy Vlozheniya i Ikh Prilozheniya [Imbedding Theorems and Their Applications--Collection of Works], Moscow, Nauka Press, 1970, pp 179-185, (Translated from Referativnyy Zhurnal Matematika, No 8, 1970, Abstract No 8B85, by the author).

Translation: After a brief review, the combined results of P. I. Lizorkin and the author related to the first boundary value problem for an elliptical-type equation with strong degeneration along the entire boundary of the area in which the problem is studied are presented. 8 illustrations; 24 biblio. refs.

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USSR

UDC 621.35.035.2:669.22

ROSS, A. A., PUUSEPP, M. YA., LOODMAA, V. R., and NIKOL'SKIY, V. A.

"Influence of Some Impurities on the Anode Operation of Porous Silver Electrodes"

Sb. rabot no khim. istochnikam toka. Vses. n.-n akkumulyator. in-t (collection of works on the Chemical Source of Current. All-Union Scientific Study Institue for Storage Batteries), Vyp 7, 1972, pp 185-189 (from Referativnyy Zhurnal -- Khimiya, No 8(II), 1973, Abstract No 8L243)

Translation: By plotting the galvanostatic curves of the discharge, it is possible to study the oxidation of silver electrodes in an alkaline environment for the introduction of different impurities into the electrode material or into the electrolyte solution. On the basis of values calculated from experimental data, the value of the coefficient of oxidation of silver and the displacements of the potential of the electrode at the beginning of the observed evolution of oxygen to the potential of the formation of AgO was determined. It was advantageous to use impurities to improve the electrical characteristics of the silver electrode. Compounds being considered for use as additional impurities include ZrO_2, HfO_2, Cr_2O_3 and Fe_2O_3.

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USSR UDC 621.355.8(088.8)

POZIN, Yu. M., GOLUB, Yu. S., NIKOL'SKIY, V. A.

"Method of Preparation and Use of Alkaline Battery"

USSR Author's Certificate No 300915, Filed 20/01/70, Published 26/05/71, (Translated from Referativnyy Zhurnal, Khimiya, No 2, 1972, Abstract No 2 L216 P by the author's).

Translation: A method is suggested for preparation and use of alkaline batteries by formation of charge and discharge cycles, differing in that in order to increase the specific electrical characteristics and produce additional capacitance of the negative electrodes, a discharged battery is pole switched bypassing a quantity of electricity equal to 20-80% of the capacity of the positive electrodes through it.

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Acc. Nr: AP0052509 Abstracting Service: CHEMICAL ABST. 5-70 Ref. Code: UN0460

N

101316z **Radiothermoluminescence of polyethylene films under stress.** Nikol'skii, V. G.; Sapozhnikov, D. N.; Tochin, V. A. (Inst. Khim. Fiz., Moscow, USSR). *Vysokomol. Soedin., Ser. B* 1970, 12(1), 19-22 (Russ). High-pressure polyethylene (I) films were irradiated with γ-rays at 77°K and heated ≤235°K. The intensity (I) of radiothermoluminescence was detd. of unstretched I and of I elongated under loads ≤ the load at yield point. The plots of I vs. temp. had max. at 152, 181, and 232°K. Under stress, there is a very strong max. in the 200-235°K range, the position of which depends on the applied stress. The phenomenon is discussed in terms of the mol. mobility of I. CPJR

JL.

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REEL/FRAME
19821150

7

USSR

UDC 621.387

KASHNIKOV, N.G., POKRYVAYLO, A.B., TYUREMNOV, G.N., NIKOL'SKIY, V.M.

"Dual Mechanotron"

USSR Author's Certificate No 217656, filed 18 Feb 66, published 16 Jan 70 (from RZh--Elektronika i yeye primeneniye, No 11, November 1970, Abstract No 11A148P)

Translation: A dual longitudinal control mechanotron is proposed, which differs in the fact that with the object of increasing the sensitivity and precision, the mechanotron container is filled with gas, the anode is made in the form of wire rings, and the cathode in the form of a plate, in order to assure formation of a corona discharge.

1/1

USSR

UDC: 621.372.852.6

NIKOL'SKIY, V. V., KORNIYENKO, D. I.

"An Algorithm for Calculating the Scattering Matrix of a Waveguide Transformer With two Inputs"

Tr. Mosk. in-ta radiotekhn., elektron. i avtomatiki (Works of the Moscow Institute of Radio Engineering, Electronics and Automation), 1970, vyp. 40, pp 35-39 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1B110)

Translation: The authors consider diffraction of waveguide waves arriving from infinity and encountering an object or group of objects which are contained within a transformer having two inputs and constructed on the basis of a section of regular waveguide. The problem is solved by the so-called projection method which allows construction of a computerizable algorithm. Two illustrations, bibliography of two titles. N. S.

1/1

USSR

UDC: 621.372.81

NIKOL'SKIY, V. V., FEOKTISTOV, V. G.

"Estimates of Upper and Lower Bounds for Problems of Diffraction and Radiation"

Tr. Mosk. in-ta radiotekhn., elektron. i avtomatiki (Works of the Moscow Institute of Radio Engineering, Electronics and Automation), 1970, vyp. 40, pp 50-60 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1B109)

Translation: The authors consider the use of variational methods for constructing universal algorithms in problems of diffraction and radiation inside and outside of waveguides. One illustration, bibliography of five titles. N. S.

1/1

USSR

UDC 621.372.822.09:5

NIKOL'SKIY, V.V., IZMAYLOV, F.F., FEDOSEYEV, A.P.

"Application Of Impedance Treatment To The Problem Of Diffraction For A Rectangular Waveguide"

Radiotekhnika i elektronika, Vol XVII, No 6, June 1972, pp 1305-1309

Abstract: The paper studies a projection method proposed by one of the authors [V.V. Nikol'skiy, Radiotekhnika i elektronika, 1971, 16, 7, 1120 and 8, 1342] which employs an impedance treatment, using as an example a class of problems of practical interest -- diffraction of the H_{10} wave of a rectangular waveguide at a system of bodies in the form of parallelepipeds, gyrotropic and isotropic. On the whole the results obtained confirm the legitimacy of the proposed algorithm; they are of importance also by themselves, demonstrating admissability but not having been subjected to a well-grounded experimental study as well as a calculation. 6 fig. 4 ref. Received by editors, 15 November 1971.

1/1

USSR

UDC 531.787.913.087.92

KAS'YAN, V.A., KOZLOV, A.I., NIKOL'SKIY, YU.A.

"Strain Sensitivity In p- and n-Type GaSb Films"

Tr. po fiz. poluprovodnikov. Kishinev. un-t (Works On Semiconductor Physics. Kishinev University), 1971, Issue 3, pp 88-94 (from RZh:Elektronika i yeye primeneniye, No 7, July 1972, Abstract No 7B377)

Translation: Polycrystalline films of p- and n-type gallium antimonide on mica and quartz substrates are prepared by discrete evaporation. Layers of n-type GaSb were prepared with tellurium doping. Monocrystalline films of p- and n-type gallium antimonide were grown by epitaxial deposition on substrates of monocrystals of GaAs and GaSb. The deformation, temperature, and time characteristics are studied of strain resistors [tenzorezistor] prepared on the basis of polycrystalline and monocrystalline films of n- and p-type GaSb. The dependence of the absolute change of the resistance on the magnitude of the deformation with expansion and compression deformations bears a linear character up to the maximum distortions. A decrease of the sensitivity factor with an increase of temperature is observed for all the films. The principal parameters of the sensitivity resistors are determined. Strain resistors from polycrystalline n-type GaSb films are the most promising for the preparation of strain gauges [tenzodatchik]. High

1/2

USSR

KAS'YAN, V.A., et al. Tr. po fiz. poluprovodnikov. Kishinev. un-t, 1971, Issue 3, pp 88-94

values of strain sensitivity [tenzochuvstvitel'nost'] in polycrystalline films may be caused by the effect of intercrystalline barriers on the magnitude of the strain sensitivity. 6 ill. 1 tab. 3 ref. Summary.

2/2

USSR

UDC: 517.514

NIKOL'SKIY, YU. S.

"Certain Theorems of Imbedding for Weight Classes and Their Applications"

Teoremy Vlozheniya i Ikh Prilozheniya [Imbedding Theorems and Their Applications--Collection of Works], Moscow, Nauka Press, 1970, pp 185-192 (Translated from Referativnyy Zhurnal Matematika, No 8, 1970, Abstract No 8B38, by the author).

Translation: Weight functional spaces of differentiable functions of many variables with weights having a singularity at infinity are studied. A number of direct and inverse imbedding theorems are proven for these spaces. The first boundary value problem for the degenerate elliptical equations of higher orders in a half space is solved using these theorems by a variational method.

1/1

USSR

UDC 536.24:532.526

NIKOL'SKIY, Yu. V., PERVUSHIN, G. Ye., CHERNIKOVA, L. G.

"Measurement of Thermal Flows on Spheres and Cones in a Vacuum Wind Tunnel"

V sb. Eksperim. issled. i vopr. modelir. techeniy razrezhen. gaza i plazmy (Experimental Studies and Problems of Modeling Flows of Rarefied Gas and Plasma -- Collection of Works), Novosibirsk, 1971, pp 41-46 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3B853)

Translation: Studies of heat exchange of a sphere and a sharp cone in the transition flow region are described. The results were obtained in a vacuum wind tunnel at R = 1-100, M_∞ = 4.9 - 9.5 and $T_w/T_0 \sim 1$ using calorimetric models of diameter 3-5 mm. The good agreement between the results obtained and calculated and experimental data of other authors is noted. 7 ref. B. I. Bakum.

1/1

USSR UDC 536.24:532.526

GUSEV, V. N., NIKOL'SKIY, YU. V.

"Experimental Study of Heat Transfer at the Critical Point of a Sphere in the Hypersonic Flow of a Rarefied Gas"

Uch. zap. Tsentr. aero-gidrodinam. in-ta (Scientific Notes of the Central Aerohydrodynamic Institute), 1971, Vol 2, No 1, pp 122-125 (from RZh-Mekhanika, No 11, Nov 71, Abstract No 11B634)

Translation: The possibility of using incompletely expanded nozzles in hypersonic wind tunnels to study flow around the models in a broad range of variation of the R_0 number is confirmed in an example of an experimental study of heat transfer at the critical point of a sphere. The experiments were performed in a hypersonic shock tube at Mach numbers of $M < 32$.

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USSR

UDC: 536.24:532.526

NIKOL'SKIY, Yu. V., PERVUSHIN, G. Ye., CHERNIKOVA, L. G.

"Experimental Investigation of Heat Transfer on Spheres and Thin Cones in a Hypersonic Rarefied Gas Flow"

Uch. zap. Tsentr. aerogidrodinam. in-ta (Scientific Notes of the Central Aerohydrodynamic Institute), 1970, 1, No 1, pp 71-77 (from RZh-Mekhanika, No 9, Sep 70, Abstract No 9B832)

Translation: The paper is dedicated to experimental investigation of heat transfer on spheres and thin cones at a zero angle of attack. The study was done in a vacuum wind tunnel at Mach numbers of 4.9-9.5 and Reynolds numbers R_0 = 35-1 for spheres and R_0 = 100-4 for cones, which corresponds to the region of transition between free molecular flow and the flow of a continuous medium. Use was made of the method of measurements of the overall heat flux in the steady state with compensation of heat losses in the holder and independent measurement of the radiant heat flux. The resultant data are compared with the results of theoretical calculation. Resumé.

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1/2 025 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--EFFECT OF CHARGE FORMED IN A DIELECTRIC ON THE VOLTAMPERE CHARACTERISTICS OF AL,SIO SUBX AL STRUCTURES -U-

AUTHOR-(02)-KHRENOV, V.P., NIKOLSKIY, YU.V.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(5), 991-2

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--DIELECTRIC MATERIAL, VACUUM TECHNIQUE, GLASS, CERAMIC MATERIAL, ELECTRON CHARGE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/1821 STEP NO--UR/0449/70/004/005/0991/0992

CIRC ACCESSION NO--AP0130651

UNCLASSIFIED

2/2 025 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0130651

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SPECIMENS 0.1-0.4 MU THICK OF AL,SIO SUBX AL WERE PREPD. BY VACUUM EVAPN. ON A HEATED GALSS CERAMIC SUBSTRATE; THE PPTN. RATE OF SIO WAS 10-80 ANGSTROM-SEC. THE I,V CHARACTERISTICS EXHIBITED AN OHMIC REGION FOR V EQUALS SEVERAL MV, THEN A TRANSITION REGION UP TO A VOLTAGE V SUB3 (SEVERAL V), AND AN EXPONENTIAL REGION FOR V LARGER THAN V SUB3. WITH A D.C., A TEMPORAL INSTABILITY WAS OBSD. FOR V SMALLER THAN V SUB3. FROM THE TIME DEPENDENCE OF THE DEPOLARIZATION CURRENT, THE CHARGE ACCUMULATED IN THE DIELEC. WAS CALCD. WITH INCREASING V, THIS CHARGE INCREASED UNTIL A SATN. VALUE WHICH CORRESPONDED TO V SUB3. THE INSTABILITY IS EXPLAINED BY DEEP TRAPPING LEVELS WHICH ARE FILLED AT V LARGER THAN V SUB3. THEIR CONCN. IS ESTD. AS LARGER THAN 1 TIMES 10 PRIME17-SM PRIME3, AND THE LAYER WITH THE MAX. CONCN. OF SPACE CHARGE IS A FEW 100 ANGSTROM THICK.

UNCLASSIFIED

USSR

NIKOL'S'KYY, V. V., and LYTVYN, V. P., Ukrainian Order of the Red Banner Agricultural Academy

"The Natural Resistance of the Animal Organism to Disease and Ways of Increasing It"

Kiev, Mikrobiologicheskiy Zhurnal, Vol 33, No 6, Nov/Dec 71, pp 781-782

Abstract: It was established in former work that in the early postembryonic life of calves, phagocytic defense reactions of the organism against infection predominate. Humoral factors of immunity develop later and immunological maturity is reached at an average age of 60 days. The rate at which supplemental immunological maturation takes place depends on the conditions under which the calves are kept. A study of the resistance to infection was carried out on calves of the Aberdeen-Angus breed during their acclimatization in the Ukrainian Poless'ye. The immunological reactivity of Aberdeen-Angus calves fed by one-year old mother cows was superior to that of calves of the black-spotted breed and of mixed breeds. There was a direct relationship between the rate of growth of calves of different breeds and the immunological reactivity. During the first 5-8 days of life all calves exhibited well-developed cellular protective functions manifested in active phagocytosis

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USSR

NIKOL'S'KYY, V. V., and LYTVYN, V. P., Mikrobiologicheskiy Zhurnal, Vol 33, No 6, Nov/Dec 71, pp 781-782

of E. coli by polynuclear leukocytes, while the bactericidal activity of the blood was weak. The immunological reactivity evinced by a higher degree of bactericidal and bacteriostatic activity of the blood increased with the age of the calves, reaching its maximum at the age of 6 mos. The immunological reactivity depended on the season and the feed received by the calves. In May, when green feed was included in the ration, the phagocytic and bactericidal activity of the blood of calves increased significantly. In Aug, the blood sera of the animals stopped completely the growth of E. coli in agar after 4-24 hrs of contact with the cultures. Low winter temperatures combined with a high humidity lowered the immunological reactivity of the calves. The content of gamma-globulin in the blood serum of Aberdeen-Angus calves was higher up to the age of 7 mos than that in the serum of calves of the other breeds studied.

2/2

1/2 049 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--ELECTROPHYSICAL PROPERTIES OF ALKALI METAL METASELENOARSENITES -U-

AUTHOR-(05)-DOVGOSHEY, N.I., NIKOLYUK, V.I., SEMRAD, YE.YE., CHEPUR, D.V., GOLOVEY, M.I.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., FIS. 1970, 13(3), 138-9

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--ACTIVATION ENERGY, IR RADIATION, SEMICONDUCTOR MATERIAL, PHYSICAL CHEMISTRY PROPERTY, SODIUM COMPOUND, POTASSIUM COMPOUND, ARSENIDE, SELENIDE, CESIUM COMPOUND, LITHIUM COMPOUND, RUBIDIUM COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/1504 STEP NO--UR/0139/70/013/003/0138/0139

CIRC ACCESSION NO--AT0130433 UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--04DEC70

2/2 049

CIRC ACCESSION NO--AT0130433

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE COND. SIGMA, OF MASSE SUB2, M EQUALS LI, NA, K, RB, AND CS, WAS DETD. FROM MINUS 50 TO 190DEGREES. THE ACTIVATION ENERGY OBTAINED FROM LOG SIGMA VS. 1-T CURVES INCREASED FROM 1.10 FOR LIASSE SUB2 TO 2.00 EV FOR CSASSE SUB2. ALL MASSE SUB2 EXHIBITED A SLIGHT PHOTOSENSITIVITY AT ROOM TEMP. LIASSE SUB2 WAS SENSITIVE TO IR RADIATION. ALL OTHERS WERE SENSITIVE TO VISIBLE LIGHT. THE HIGHEST PHOTOSENSITIVITY WAS EXHIBITED BY NA AND K COMPDS. THAT OF NAASSE SUB2 INCREASED SHARPLY AS THE TEMP. DECREASED. ALL MASSE SUB2 COMPDS. ARE SEMICONDUCTORS. FACILITY: UZHGOROD. GOSUNIV., UZHGOROD, USSR.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--HARDNESS OF STEEL G13 AFTER MECHANICOTHERMAL TREATMENT -U-

AUTHOR-(04)-KRIVOSPITSKIY, V.M., NIKONENKO, A.S., KHARITONOVA, V.F., KIBETS, V.L.

COUNTRY OF INFO--USSR

SOURCE--METALLOVED. TERM. OBRAB. METAL. 1970, (3), 47-8

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--THERMOMECHANICAL TREATMENT, HIGH MANGANESE STEEL, METAL HARDNESS, ALLOY DESIGNATION, ALLOY COMPOSITION, METAL DEFORMATION, MATERIAL FRACTURE/(U)G13 HIGH MANAGANESE STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1704 STEP NO--UR/0129/70/000/003/0047/0048

CIRC ACCESSION NO--AP0118682

UNCLASSIFIED

2/2 025 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0118682

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SPECIMENS FROM STEEL G13 (C 1.18, MN 13.5, SI 0.62, P 0.083, AND S 0.06 WT. PRECENT), SIZE 8 TIMES 8 TIMES 10 MM WERE HEATED IN ACTIVIATED CARBON AT 1050DEGREES FOR 20 MIN AND THEN COOLED IN WATER. DEFORMATION BY COMPRESSION FOLLOWED AT THE RATE 1 MM-MIN AND ANNEALING IN A SALT BATH AT 100-800DEGREES. AFTERWARDS SPECIMENS WERE POLISHED MECH. AND ELECTROCHEM. AND HARDNESS WAS DETD. WITH INCREASED DEFORMATION DEGREE UP TO 50PERCENT, THE HARDNESS STARTED TO DECREASE AT 300DEGREES AND THE DECREASE WAS COMPLETED AT 800DEGREES. THE COMPRESSION DEFORMATION INCREASED HARDNESS. HARDNESS OF QUENCHED SPECIMENS INCREASED NEARLY IN LINEAR FASHION WITH INCREASED DEFORMATION DEGREE, WHILE THAT OF HEAT TREATED SPECIMENS INCREASED INTENSELY ONLY AT SMALL DEFORMATION DEGREES. INCREASED TEMP. AND TIME OF ANNEALING CAUSED AN INCREASED BRITTLENESS OF QUENCHED AND TEMPERED STEEL. E.G. AFTER ANNEALING FOR 2 HR AT 450DEGREES THE FRACTURE OCCURRED AT 40PERCENT REDN. DEGREE, WHILE AFTER ANNEALING AT 550DEGREES THIS BREAKDOWN OCCURED AT 20PERCENT REDN. DEGREE. FACILITY: KRIVOROZH. GORNORUD. INST., KRIVOI ROG, USSR.

UNCLASSIFIED

Thermomechanical Treatment

USSR

UDC 620.178:669.15'74.194

KRIVOSPITSKIY, V. M., NIKONENKO, A. S., KHARITONOVA, V. F., and KIBETS, V. L.
(Krivoy Rog Mining Institute)

"Strength of G13 Steel After Mechanical-Heat Treatment"

Moscow, Metallovedeniye i termicheskaya obrabotka metallov, No 3, 1970, pp 47-48

Abstract: Results are presented of the investigation on the effect of mechanical and heat treatment on the hardness and compression strength of G13 steel. The experimental procedure and technique for production of samples are described. The results show that the nature of hardness variation of samples after heat or mechanical heat treatment is the same. The strength increases as the result of compression. A microscopic nature of plastic deformation was observed at austenite steel compression. At small deformations, straight lines passing through the whole grain were observed, while the grain number with lines increases with deformation. At high degrees of deformation, the deformation lines become undulating, then lines appear along which the destruction develops. Upon deformation of steel, annealed at 500-600°C, lines of deformation were observed at short annealing holding times, while at prolonged annealing times and high degrees of deformation lines were absent. 2 figures, 13 references.

1/1

Acc. Nr. AP0034205 Abstracting Service: CHEMICAL ABST. 4-70 Ref. Code UR 0078

74229q Synthesis and properties of nickel oxalate monohydrazinate. Krylov, E. I.; Nikonenko, E. A.; Sharov, V. A.; Ovchinnikov, Yu. M. [Ural. Politekh. Inst. im. Kirova, Sverdlovsk, USSR]. *Zh. Neorg. Khim.* 1970, 15(1), 38–40 (Russ). A mixt. of 1 g powd. $NiC_2O_4.2H_2O$, 8.8 ml H_2O, and 0.2 ml 92% N_2H_4 was stirred for 1 hr and then left standing at room temp. for 5 hr. The bright-blue ppt. of $NiC_2O_4.N_2H_4.2H_2O$ (I) was washed with alc. and Et_2O; at 20°, d. of I is 2.21 g/cm³. The magnetic susceptibility of I, detd. at 87–209°K, agrees with the Curie-Weiss law, with $\theta = -45$°K. I is assumed to have an octahedral structure ($\mu_{eff.} = 3.37\ \mu B$). HMJR

REEL/FRAME 19710858

USSR

UDC 542.938:547.26'118

NIKONOROV, K. V., GURYLEV, E. A., BEL'SKIY, V. Ye., and MAYOROVA, T. A., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov Academy of Sciences USSR

"Kinetics and the Mechanism of Hydrolysis of Chlorophos and Some of Its Analogs"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 9, Sep 73, pp 1925-1929

Abstract: The kinetics of aqueous hydrolysis of chlorophos and some of its analogs were investigated. It was shown that the reaction occurs in two directions, each of which exhibits several stages. A diagram for the hydrolysis has been proposed. The overall constant of hydrolysis and the constants of the reaction rates in both directions have been evaluated. It has been shown that changes in the molecular structure had a definite effect on the rate and the direction of the hydrolysis.

UDC 547.26'118 + 541.127

USSR

NIKONOROV, K. V., GURYLEV, E. A., and MERTSALOVA, F. F., Institute of Organic and Physical Chemistry Imeni A. Ye. Arbuzov, Academy of Sciences, SSSR Kazan'

"Reaction of Dialkyl- or Diaryl 1-Alkoxy-2,2,2-trichloroethyl Phosphites With Halogen Compounds"

Leningrad, Zhrunal Obshchey Khimii, Vol 42 (104), No 12, Dec 72, pp 2661-2664

Abstract: Investigating the reaction of dialkyl- and diaryl 1-alkoxy-2,2,2-trichloroethyl phosphites with halogen compounds -- benzyl bromide, acetyl chloride, acetyl bromide, benzoyl chloride, and chloral -- it was shown that the reaction of dialkyl 1-alkoxy-2,2,2-trichloroethyl phosphites with alkyl halides takes place with a strong electron donor radical being eliminated. The reaction of dialkyl- and diaryl 1-alkoxy-2,2,2-trichloroethyl phosphites with acyl halides takes place with the elimination of 1-alkoxy-2,2,2-trichloroethyl radical. With chloral the phosphites yield respective dichlorovinyl phosphates.

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UDC 542.938:661.718.1

USSR

ANDREYEVA, L. S., ANDRIANOV, A. A., BEL'SKIY, V. YE., VAVILOVA, M. F., GURYLEV, E. A., and NIKONOROV, K. V., Institute of Organic and Physical Chemistry imeni A Ye. Arbuzov, Academy of Sciences. U SSR

"Hydrolysis of Dimethyl-(1-acetoxy-2,2,2-trichloroethyl)phosphonate"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 10, Oct 71, pp 2336-2338

Abstract: Chloracetophos -- diemthyl-(1-acetoxy-2,2,2-trichloroethyl) phosphonate -- is a fungistatic agent. It undergoes hydrolysis easily losing its physiological activity. There are three possible routes for its hydrolysis, and it was established that all three occur simultaneously, the acetic acid, hydrochloric acid, and methanol being formed in the process. The hydrolysis is dependent on the temperature and pH -- it accellerates rapidly with the increase of pH. The overall rate constants for the initial reaction period were calculated to be 1.2×10^{-3}, 9.8×10^{-3}, and 4.9×10^{-2} min^{-1} at 50, 70 and 90° respectively.

1/1

USSR

UDC 542.91+661.718.1

NIKONOROV, K. V., GURYLEV, E. A., MERTSALOVA, F. F., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences, USSR

"Preparation of Phosphorylated Chloral Mercaptals"

Moscow, Izvestiya Akademiyi Nauk SSSR, Seriya Khimicheskaya, No 5, May 70, pp 1159-1161

Abstract: The reaction of dialkyl chlorophosphites with 2,2,2-trichloro-1--hydroxyethyl alkyl sulfides -- hemimercaptals of chloral -- yielded the corresponding phosphites. These phosphites can be oxidized and can combine with sulfur to form the corresponding phosphates and thiophosphates.

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UDC: 547.26'118'113

USSR

BIRYUKOV, I. P., NIKONOROV, K. V., GURYLEV, E. A., DEYCH, A. Ya., Institute of Organic and Physical Chemistry, Academy of Sciences of the USSR

"Investigation of Organic Compounds of Trivalent Phosphorus $RPCl_2$ and $CCl_3CCH(OH)P(O)RR$ by the Method of Nuclear Quadrupole Resonance"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), No 6, Jul 72, pp 1223-1227

Abstract: A pulse method of nuclear quadrupole resonance was used at 77°K to study 23 organic compounds of phosphorus, $RPCl_2$ and $Cl_3CCH(OH)P(O)RR'$. The results are given in tables and graphs. A comparison of the nuclear magnetic resonance frequencies of organochlorophosphorus compounds and their analogs -- organylchlorosilanes -- showed that the frequencies lie along a correlation line calculated by the least sum method:

$$\nu_m(P-Cl) = -2.40 + 1.5\nu_m(Si-Cl) \pm 0.15. \quad (1)$$

A comparison of the experimental and theoretical values of ν_m shows that molecules containing alkoxy groups or those without an organic radical deviate from the correlation line. It was also found that the frequencies of nuclear quadrupole resonance increase with an increase in the number of methyl groups in the molecule.

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UNCLASSIFIED PROCESSING DATE--30OCT70

1/2 029

TITLE--CORROSION PROTECTIVE PROPERTIES OF SILICONE LIQUIDS AND DIOCTYL SEBACATE -U-

AUTHOR-(05)-SMIOTANKO, E.A., SHEKHTER, YU.N., NIKONOROV, YE.M., YEROKHIN, G.S., SHVETSOVA, V.T.

COUNTRY OF INFO--USSR

SOURCE--NEFTEPERERAB. NEFTEKHIM. (MOSCOW) 1970, (2), 14-16

DATE PUBLISHED--------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATERIALS

TOPIC TAGS--CORROSION PROTECTION, SILICONE, COPPER ALLOY, LUBRICANT PROPERTY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/1674 STEP NO--UR/0318/70/000/002/0014/0016

CIRC ACCESSION NO--AP0118652
UNCLASSIFIED

2/2 029 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0118652

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A RELATION WAS OBTAINED BETWEEN THE RELATIVE ELEC. RESISTANCE (R) AND THE RELATIVE POLARIZATION RESISTANCE (R SUBP) OF THIN LUBRICANT LAYERS ON METAL SURFACES AND THE ELECTROCHEM. CORROSION. DIOCTYL SEBACATE (I) OR VARIOUS COM. SILICONE OILS (POLY(METHYLSILOXANE), POLY(METHYLPHENYLSILOXANE), POLY(ETHYLSILOXANE), POLY(METHYL,GAMMA,TRIFLUOROPROPYLSILOXANE)) DO NOT PROTECT CU PLATES AGAINST A RAPID WT. LOSS IN 0.5N NACL SOLN. AND HAVE LOW R AND R SUBP VALUES (IN 0-30.0PERCENT RANGE). THE ADDN. OF 2PERCENT CORROSION INHIBITOR, SUCH AS "UREA SUCCINIMIDE", TO I INCREASED ITS R FROM 5.0 TO 98.8PERCENT, ITS R SUBP FROM 0 TO 66PERCENT, AND CONSIDERABLY REDUCED THE ELECTROCHEM. CORROSION OF CU PROTECTED WITH IT.

UNCLASSIFIED

USSR

UDC 543.422.23:546.1'118

NURETDINOV, I. A., NEGMEETSKIY, V. V., YANKELEVICH, A. Z., KESSENIKH, A. V., NIKONOROVA, L. K., and LOGINOVA, E. I., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR, and Institute of Organic Chemistry imeni N. D. Zelenskiy, Academy of Sciences USSR

"NMR-H^1, NMR-P^{31} and INDOR-H^1 - $\{P^{31}\}$ Spectra of Compounds Containing $\equiv P(X) - \underset{\underset{CH_3}{|}}{N} - P(Y) \equiv$ Group"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, no 11, Nov 71, pp 2589-2591

Abstract: For purposes of studying the spin-spin interaction in compounds with fragments of the type $\equiv P(X) - \underset{|}{N} - P(X) \equiv$ and $\equiv P(X) - \underset{|}{N} - P(Y) \equiv$, the authors studied the NMR-H^1, NMR-P^{31} and INDOR-$H^1 - \{P^{31}\}$ spectra of the following compounds: $(CH_3O)_2P_I(O)N(CH_3)P_{II}(OCH_3)_2$, $(CH_3O)_2P_I(O)N(CH_3)P_{II}(Se)(OCH_3)_2$, $(CH_3O)_2P_I(O)N(CH_3)P_{II}(Se)(OC_3H_7\text{-}i)_2$, $(CH_3O)_2P_I(S)N(CH_3)P_{II}(Se)\langle^{OC_3H_7\text{-}i}_{N(C_2H_5)_2}$. The values and

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NURETDINOV, O. A., et al., Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 11, Nov 71, pp 2589-2591

signs of the constants $^{2}J_{PP}$, $^{3}J_{PNCH}$ were determined. The series of compounds studied display a decrease in the value of $^{2}J_{PP}$ with a change in its sign.

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USSR

UDC 542.91:661.718.1

NURETDINOV, I. A., NIKONOROVA, L. K., LOGINOVA, E. I., and GRECHKIN, N. P., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR

"Amidoesters of Selenophosphoric Acid"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 9, Sep 71, pp 2095-2097

Abstract: For purposes of studying the effect of the amide and ester group structure on the physical and biological properties of alkylselenophosphoric acid amides, the authors synthesized a series of new amidoesters of selenophosphoric acid by the addition of elemental selenium to corresponding tervalent phosphorus acid amides. The NMR-P^{31} and IR spectra of the resultant compounds were studied. It was found that the electron effects of the phosphorus substituents in amidoesters of selenophosphoric acid have little influence on the shielding of the phosphorus nucleus. A separate article will report the results of a study of insecticidal and fungicidal properties of the compounds.

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USSR

UDC 542.91 + 538.113 + 661.718.1

NURETDINOV, I. A., LOGINOVA, E. I., NIKONOROVA, L. K., and GRECHKIN, N. P., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Kazan, Academy of Sciences USSR

"Synthesis and NMR Spectra of Compounds Containing the :P(S)-N-P: Group"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, Vol 4, Apr 70, pp 914-916

Abstract: Mixed amides of dimethylthiophosphoric acid and trivalent phosphorus acids were obtained by reacting the methylamide of dimethylphosphoric acid with trivalent phosphoric acid chloride in the presence of triethylamine or by the reaction of N-dimethylthiophosphane-N-dichlorophosphine-N-methylamine with the dimethylamine in ether solution. Since the two phosphorus atoms are not equivalent -- P^{IV}-N-P^{III} -- their respective signals were found to be split in doublets. Chemical shifts of the nuclei of tetracoordinated phosphorus are not affected by substituents on the tricoordinated P,

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NURETDINOV, I. A., et al, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, Vol 4, Apr 70, pp 914-916

while the shifts of nuclei on tricoordinated P behave analogously to monophosphoric compounds. The constants of spin-spin interaction Jpp depend on the electron donating power of the substituents on tricoordinated phosphorus.

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USSR

UDC 629.7.036.54-66:536.46

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IVANOV, B. I., IZMAYLOV, YE. M., NARKUNSKIY, S. YE., NIKONOV, A. P., and PLESHAKOV, V. F.

"Limit Conditions for the Propagation of Combustion Along Metal Specimens in Gaseous Oxygen"

Moscow, Goreniye i Vzryv -- Sbornik (Combustion and Explosion -- Collection of Works), Nauka, 1972, pp 148-152 (from Referativnyy Zhurnal -- Aviatsionnyye i Raketnyye Dvigateli, No 2, 1973, Abstract No 2.34. 148. Resume)

Translation: Measurements are made of the propagation rate of combustion and the minimum oxygen pressure at which the propagation of combustion takes place, for cylindrical specimens of steels Kh18N9T and 3Khlj, copper-containing iron, and low-carbon steel. The oxygen pressure was varied from 1 to 400 technical atmospheres, the velocity of the external stream of oxygen was varied from 0 to 100 m/sec, the diameter of the specimen varied between 1.2 and 6.0 mm. The experimental data are in good agreement with a model in which combustion on the surface of a liquid drop of metal is controlled by the diffusion of oxygen through a gas, and confirms the assumption of independence of the limit (minimum)

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(1)

USSR

IVANOV, B. I., et al., Goreniye i Vzryv -- Sbornik, Nauka, 1972, pp 148-152 (from Referativnyy Zhurnal -- Aviatsionnyye i Raketnyye Dvigateli, No 2, 1973, Abstract No 2.34. 148. Resume)

density of the heat flux required for the maintenance of combustion from the pressure, the specimen diameter, and the velocity of the gas stream. 4 figures. 6 references.

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4-1

UDC 621.382.322

USSR

SOPOV, O.V., ABRAMOVA, L.I., MIKHEYEV, A.D., NIKONOV, I.S., RZHANOVA, T.R.

"Stabilization Of MOS Transistor By *Phosphorous Silicate Glass*"

Elektron. tekhnika. Nauchno-tekhn. sb. Poluprovodn. pribory (Electronic Technology. Scientific-Technical Collection. Semiconductor Devices), 1970, Issue 2(52), pp 169-186 (from RZh--Elektronika i yeye primeneniye, No 3, March 1971, Abstract No 3B215)

Translation: The problems are considered of the stabilization of a MOS transistor with an induced p-channel by phosphorous silicate [fosfornosilikatnyy] glass. An investigation is conducted of the effect of the conditions of formation of phosphorous silicate glass on the stability of the device. The existence of optimum conditions for the stabilization process is established. It is possible with the aid of stabilization by phosphorous silicate glass to assure high stability of a MOS transistor during the long-term action of an electrical load and increased temperature of the environment. Summary.

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UNCLASSIFIED PROCESSING DATE--23OCT70

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TITLE--ON THE PERFORMANCE OF A PYROELECTRIC WITH A FIELD EFFECT TRANSISTOR -U-

AUTHOR-(05)-NOVIK, V.K., NIKONOV, A.S., SOPOV, O.V., LEVINA, I.A., GAVRILOVA, N.D.

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CIRC ACCESSION NO--AP0104759

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS PAPER IS CONCERNED WITH THE PERFORMANCE OF PYROELECTRIC ELEMENTS (INVRARED AND MILLIMETER WAVE DETECTORS, THERMOMETERS, ETC.) WITH A FIELD EFFECT TRANSISTOR. A GROUP OF DEVICES COMBINING RECEIVING AND AMPLIFYING ELEMENTS IN ONE DEVICE WAS INVESTIGATED. THE DEVICES WERE BASED ON SILICON METAL OXIDE SEMICONDUCTOR (MOS) TRANSISTORS WITH P AND N TYPE CHANNELS. THE BASIC GOAL OF THE INVESTIGATION WAS THE DETERMINATION OF THE MAXIMUM VALUE OF THE THERMAL NOISE R WHICH ASSURES ABSENCE FROM BREAKDOWN OF THE GATE IN THE PRESENCE OF VARIOUS THERMAL EFFECTS (OVER ALL SLOW CHANGE OF TEMPERATURE, POWER PULSE EXPOSURE, ETC.). THE DEVICES WERE ASSEMBLED IN THE CASINGS OF TYPE GT-313 TRANSISTORS. THE SENSING ELEMENTS WERE PREPARED FROM CRYSTALS OF TRIGLYCINESULFATE AND MEASURED SIMILAR TO 3 BY 3 BY 0.5 MM. MOUNTING OF THE ELEMENTS AND THE ELECTRODES TO THEM WAS DONE WITH SILVER PASTE. THE INVESTIGATIONS SHOWED THAT THE STABILITY OF DEVICES WITH A P TYPE CHANNEL WAS DEFINITELY HIGHER. IT WAS DETERMINED THAT THE OPTIMUM VALUE OF R IS 1 G OHM. WITH SUCH A LOAD, THE THRESHOLD SENSITIVITY IN THE 20 HZ, 20 KHZ RANGE AMOUNTS TO SIMILAR TO 3 TIMES 10 PRIME NEGATIVE7 WATT. IT WAS FOUND THAT TRANSISTORS WITH A VOLTAGE CUT OFF OF 5 V ARE MOST SUITABLE FOR OPERATION WITH PYROELECTRIC ELEMENTS. IN THAT CASE, THE BIAS VOLTAGE WHICH IS FED TO THE GATE FROM THE DRAIN SOURCE ASSISTS LONG TERM MAINTENANCE OF THE MACROSCOPIC POLARIZATION OF THE CRYSTAL. THE WRITERS CONCLUDE THAT FIELD EFFECT TRANSISTORS ARE PROMISING AMPLIFYING ELEMENTS FOR OPERATION WITH PYROELECTRIC ELEMENTS.

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UNCLASSIFIED PROCESSING DATE--23OCT70

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CIRC ACCESSION NO--AP0104759

ABSTRACT/EXTRACT--USE OF MCS TRANSISTORS IS SUITABLE UP TO A FREQUENCY OF SIMILAR TO 1 KHZ. AT HIGHER FREQUENCIES WHERE A SMALLER VALUE OF R IS PERMISSIBLE, IT IS ADVISABLE TO USE DEVICES WITH A P-N JUNCTION HAVING LESS NOISE. 2 FIG. 8 REF. RECEIVED BY EDITOR: 20 FEB 69.

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UDC: 621.382.323

USSR

NOVIK, V. K., NIKONOV, A. S., SOPOV, O. V., LEVINA, I. A., GAVRILOVA, N. D., and YEGINA, Ye. N.

"Pyroelectric Operation with Field Effect Transistor"

Moscow, Radiotekhnika i Elektronika, Vol. 15, No. 3, 1970, pp 642-644

Abstract: The authors list four advantages of pyroelectric elements which have made them objects of engineering interest: high input impedance; lower noise level; possibility of combining sensor and amplifying elements in a single device; possibility of designing planar and epitaxial integral sensor and amplifier systems. The pyroelectric detector has a low noise level, and its sensitivity depends on the condition that the product of the frequency, the load resistance, and the crystal capacitance exceed unity, a condition not easily realized in various types of transistor. Other characteristics of pyroelectric transistors are briefly listed. The authors of this brief communication

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NOVIK, V. K., et al, Radiotekhnika i Elektronika, Vol 15, No 3, 1970, pp 642-644

Abstract:

tested combined sensor-amplifier pyroelectric units with silicon junctions; the purpose of these tests was to establish the maximum value of load resistor required to evade gating breakdown for various thermal reactions such as slow temperature changes, power flare spots, etc. Photographs and a schematic sketch of these devices are shown, and some details of their fabrication are given. The tests showed that the optimal value of the load resistor was 1 gigohm; at this value, the threshold sensitivity in the 20 Hz to 20 kHz was about $3 \cdot 10^{-7}$ watts. Conclusions arrived at by the authors are: field effect transistors are promising amplifier elements for working with pyroelectric detectors; it is better to combine sensing and amplifying elements in a single package than to mount the pyroelectric directly on the transistor p-n structure.

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UDC 613.693

USSR

NIKONOV, A. V. and SOLODOVNIK, F. A.

"Characteristics of Speech After Exposure to Cariolis Accelerations"

Moscow, Voyenno-Meditsinskiy Zhurnal, No 7, 1972, pp 78-81

Abstract: Motion sickness was induced in a group of subjects by rotating them in a special chair at 180° sec and requiring them to bend their trunks forward 90° and then returning to the original position. The subjects were asked to pronounce a short sentence and 11 syllables containing all the Russian vowel sounds before and at various times after exposure to the Coriolis accelerations. In the individuals with high vestibular resistance (i.e., they did not exhibit the usual symptoms of vestibular disturbances -- perspiration, pallor, nausea, etc.), the intensity of speech exceeded the normal level by 0.5 to 1.5 db, whereas in those suffering from motion sickness it was 1 to 2 db lower. The pronunciation of the initial and final words of the standard sentence were most affected. Spectral analysis of the vowel sounds showed that the middle frequency of the main tone increased after 1 minute of exposure from 175 to 200 Hz and that of the first and second formants from 537 to 630 and 1400 to 1620 Hz, respectively. Ten minutes after the cessation of accelerations and onset of motion sickness, the frequency of the main tone decreased to 166 Hz while the frequency position of the first and second formants was close to the baseline value.